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- 1) Appeal Brief (7 pages),
- 2) Petition for 1 month extension time.

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Number of Pages Including this Page: **9**

Application No. : 10/052,733  
Applicant(s) : Mu-III Lim et al  
Filed : January 18, 2002  
Title : Primary Intermediate for Oxidative Coloration of Hair  
A.U. : 1751  
Examiner : Dr. John R. Hardee  
Conf. No. : 3203  
Docket No. : G-262ML (CP-1221)  
Customer No. : 27752

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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

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APPEAL BRIEF

Mail Stop Appeal Brief - Patents

Commissioner for Patents

P. O. Box 1450

Alexandria, VA 22313-1450

Dear Sir:

This Appeal Brief is submitted in support of the Notice of Appeal filed via facsimile on March 7, 2005. Attached hereto is a Petition for a One-Month Extension of Time and the fee required under 37 CFR §1.17(a), thus, providing for timely filing up to and including June 7, 2005.

REAL PARTY IN INTEREST

The real party in interest is The Procter & Gamble Company of Cincinnati, Ohio.

RELATED APPEALS AND INTERFERENCES

There are no known related appeals, interferences, or judicial proceedings.

STATUS OF CLAIMS

Claims 1-15 are pending. Claim 1 is rejected and claims 2-15 are withdrawn.

Claim 1 is appealed.

A complete copy of the appealed claim is set forth in the Claims Appendix attached hereto.

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### STATUS OF AMENDMENTS

No claim amendment was filed.

### SUMMARY OF CLAIMED SUBJECT MATTER

Claim 1 is directed to the compound 4-amino-2-(1-hydroxy-ethyl)-phenol. See the specification of the present application at page 2, line 29 to page 3, line 16.

The claimed compound is a suitable primary intermediate oxidative dye compound for hair coloring compositions and provides coloration to hair in which there is good dye uptake, good dye stability over time, and good dye fastness to washing and perspiration. See the specification of the present application at page 3, lines 11-16 and page 21, line 10 to page 26, line 4.

### GROUND OF REJECTION TO BE REVIEWED ON APPEAL

The following ground of rejection is submitted for consideration on appeal by the Board:

- I. Rejection under 35 U.S.C. § 103(a) over US Patent No. 5,073,174 to Vayssie et al.

### ARGUMENTS

In the Office Action of December 6, 2004, the Examiner finally rejected Claim 1 and as being unpatentable under 35 U.S.C. § 103(a) over US Patent No. 5,073,174 to Vayssie et al. ("Vayssie"). In the Advisory Action of April 15, 2005, the Examiner maintained the rejection of Claim 1.

For the reasons set forth below, Appellants submit that Claim 1 is patentably distinct from and nonobvious over the cited reference. Thus, the Board should reverse the Examiner's rejections. Accordingly, favorable action by the Board is respectfully requested.

- I. Rejection under 35 U.S.C. § 103(a) over US Patent No. 5,073,174 to Vayssie et al.

Claim 1 is finally rejected under 35 U.S.C. § 103(a) as being unpatentable over US Patent No. 5,073,174 to Vayssie et al. ("Vayssie"). Vayssie granted on December 17,

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1991. This is more than one year prior to January 23, 2001, which is the earliest claimed priority date of the presently appealed application. The Examiner asserts that Vayssie discloses 2-hydroxymethyl-4-aminophenol and 2-( $\beta$ -hydroxyethyl)-4-aminophenol, which are respectively a one-carbon homolog and a simple structural isomer of Applicants' claimed compound, as useful hair dye precursors (*i.e.*, primary intermediates). See column 3, lines 41-42 of Vayssie. The Examiner acknowledges that Vayssie does not disclose Appellants' claimed compound. However, the Examiner insists that it would have been obvious to one of ordinary skill in the art to use the claimed compound as a hair dye primary intermediate in view of the structurally similar compounds disclosed by Vayssie for the same use. Particularly, the Examiner asserts that one of ordinary skill in the art would expect the claimed compound to have similar properties to the compounds disclosed in Vayssie.

Appellants respectfully submit that the obviousness rejection should be withdrawn because the Examiner acknowledges that Vayssie does not disclose Appellants' claimed compound and further there is no motivation to modify the compounds disclosed in Vayssie to arrive at Appellants' claimed compound. Thus, a *prima facie* case of obviousness has not been established. Although a *prima facie* case of obviousness may be made when chemical compounds have "very close" structural similarities and similar utilities, *see e.g.*, *In re Wilder*, 563 F.2d 457, 195 USPQ 426 (Cust. & Pat. App. 1977), "generalizations should be avoided insofar as specific chemical structures are alleged to be *prima facie* obvious one from the other", *In re Grabiak*, 769 F.2d 729, 731, 226 USPQ 870, 872 (Fed. Cir. 1985). Importantly, "the prior art must provide one of ordinary skill in the art the motivation to make the proposed molecular modifications needed to arrive at the claimed compound." *In re Lulu*, 747 F.2d 703, 705, 223 USPQ 1257, 1258 (Fed Cir. 1984).

For example, the court in *Grabiak* held that the Patent Office did not establish a *prima facie* case of obviousness, and, thus did not shift to the applicant the burden of coming forward with evidence of unexpected results, even when the prior art disclosed structurally similar compounds. 769 F.2d at 733. The claimed compounds at issue in *Grabiak* were certain thiazole thioesters. *Id.* at 730. A reference was cited against the claimed compounds disclosing thiazole esters, which differed from the claimed

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compounds only in that an oxygen atom was present in the ester moiety instead of a sulfur atom. *Id.* Despite the structural similarity of the claimed compounds and the prior art compounds, a *prima facie* case of obviousness was not established because the Patent Office failed to cite a reference suggesting to one of ordinary skill in the art the change of a thioester (*i.e.*, a sulfur atom) for an ester (*i.e.*, an oxygen atom). *Id.* at 732. Thus, a structurally similar prior art compound alone is not necessarily enough to establish a *prima facie* case of obviousness.

In the presently appealed application, Vayssie does not disclose the claimed compound, nor would the claimed compound have been obvious to one of ordinary skill in the art in view of the disclosure in Vayssie of 2-hydroxymethyl-4-aminophenol and 2-( $\beta$ -hydroxyethyl)-4-aminophenol (hereinafter collectively referred to as the "Vayssie compounds"). Appellants' claimed compound is a one-carbon homolog of the first Vayssie compound and a structural isomer of the second Vayssie compound. However, one of ordinary skill in the art would not expect the claimed compound to have physical properties similar to those of the Vayssie compounds, despite structural similarity, because the Vayssie compounds are both primary alcohols (*i.e.*, the carbon atom bonded to the hydroxyl group also is bonded to just one other carbon atom) whereas the claimed compound is a secondary alcohol (*i.e.*, the carbon atom bonded to the hydroxyl group also is bonded to two other carbon atoms). As a result, structural similarity alone is not motivation to modify the Vayssie compounds to arrive at Appellants' claimed compound. Further, like the examiner in *Grabiak*, the Examiner in the presently appealed application has failed to cite a reference suggesting that the primary alcohol moiety of a hair dye precursor compound can be substituted with a secondary alcohol moiety.

Generally, it is known to one of ordinary skill in the art that there are differences in the physical properties and reactivities of primary alcohols relative to those of structurally similar secondary alcohols. First, for example, the oxidation of a primary alcohol yields an aldehyde, which, in turn, is oxidized easily to give a carboxylic acid. L.G. Wade, Jr, *Organic Chemistry*, 435-436 (3d ed., Prentice Hall 1995). In contrast, the oxidation of a secondary alcohol yields a ketone. *Id.* at 434. Second, the differences in reactivity of primary alcohols and secondary alcohols are illustrated by the so-called Lucas Test, which is known to one of ordinary skill in the art. *See id.* at 445-446. In the

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Lucas Test, the Lucas reagent (*i.e.*, a mixture of HCl and ZnCl<sub>2</sub>) reacts with a primary alcohol at a very different rate than it does with a secondary alcohol. *See id.* at 446. A secondary alcohol reacts with the Lucas reagent in about 1 to 5 minutes. *Id.* A primary alcohol reacts with the Lucas reagent much slower, taking from about 10 minutes to several days. *Id.* Thus, generally, one of ordinary skill in the art would not assume that a secondary alcohol would have physical properties and a reactivity like that of a structurally similar primary alcohol.

Specifically regarding Appellants' claimed compound, although the Vayssie compounds are disclosed as useful hair dye precursors, one of ordinary skill in the art would not expect the claimed compound to possess physical properties similar to the Vayssie compounds because of structural similarity alone. Indeed, the structure of Appellants' claimed compound provides ideal 6-membered internal hydrogen bonding between the two hydroxyl groups. This results in improved photochemical stability of the dyes which are formed from the claimed compound. In contrast, the structure of the second Vayssie compound of 2-( $\beta$ -hydroxyethyl)-4-aminophenol provides unfavorable 7-membered internal hydrogen bonding, which leads to dye instability.

As a consequence of the general differences in physical properties and reactivity of primary alcohols versus those of secondary alcohols, which are known by one of ordinary skill in the art, structural similarity alone is not sufficient motivation to modify the Vayssie compounds to arrive at the claimed compound.

Further, like the examiner in *Grablak*, the Examiner in the presently appealed application has not cited a reference providing any other motivation to modify the Vayssie compounds to arrive at the claimed compounds. Instead, the Examiner relies solely upon Vayssie, which is directed to compositions and processes for dyeing hair which employ certain 5,6-dihydroxyindole compounds. The Examiner cites Vayssie's disclosure of 2-hydroxymethyl-4-aminophenol and 2-( $\beta$ -hydroxyethyl)-4-aminophenol as useful hair dye precursors. However, these compounds are disclosed in Vayssie merely among a listing of numerous other para dye precursors which are suitable for use in hair dyeing compositions of Vayssie. Aside from their presence in this listing, Vayssie contains no other disclosure regarding the Vayssie compounds or modifications thereof. Importantly, there is no teaching or suggestion in Vayssie to make *any* modification to the

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Vayssie compounds, let alone a specific teaching to modify the primary alcohol moiety of the Vayssie compounds to a secondary alcohol moiety.

The disclosure of the Vayssie compounds does not establish a *prima facie* case of obviousness with respect to the claimed compound because it is known by one of ordinary skill in the art that there are differences in the physical properties of secondary alcohols compared to those of structurally similar primary alcohols, and Vayssie fails to provide any other motivation to modify the Vayssie compounds to arrive at the claimed compound. Therefore, like the holding in *Grabiak*, a *prima facie* case of obviousness has not been established and the burden of coming forward with evidence of unexpected results has not been shifted to the Appellants in the present application.

Accordingly, a rejection of Claim 1 under 35 U.S.C. § 103(a) as being obvious in view of Vayssie is improper, and Appellants respectfully request that the rejection be reversed.

#### SUMMARY

Based on the reasons set forth above, Appellants submit that Claim 1 is patentably distinct from and nonobvious over the cited reference. Accordingly, the rejections under 35 USC §103(a) are improper, and Appellants respectfully request the reversal of these rejections by the Board.

Respectfully submitted,

THE PROCTER & GAMBLE COMPANY



Signature

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Date: June 6, 2005

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CLAIMS APPENDIX

The following is a listing of Claim 1, which is the claim involved in the Appeal:

1. (Appealed) 4-Amino-2-(1-hydroxy-ethyl)-phenol.